



## Appendix IV – Photographic records from field visits, reconnaissance flights and other sources

The Kamouraska, Cacouna and Île Verte sites were visited from the shore on January 15, 2003.

An additional ground level visit on February 19, 2003 produced a good meeting with the superintendent of Ultramar's marine terminal, good observations of the ice features in the vicinity of Quebec, particularly at Pointe-de-la-Martinière. However, weather did not allow the other sites to be visited on this trip.

The three (3) "Northern" sites, were also briefly visited on March 5, 2003, on the way to Mont-Joli, for a meeting with scientists at Institut Maurice-Lamontagne, but little was added to the previous observations. Just before Mont-Joli, a pressure ridge was observed at Sainte-Flavie.

An aerial reconnaissance was done on March 6, 2003. All sites were overflown and many pictures were taken. Progressively easier ice conditions were encountered while moving downstream.

Photographs 1 to 30 are presented in geographical order, starting in Quebec and proceeding downstream.

Photographs 31 to 33 are a courtesy of Roger Provost, a senior ice observer with the Canadian Ice Service. On March 22, 2003, he took these remarkable photographs of big floes in the vicinity of the Quebec Bridge.

Photographs 34 to 39 are a courtesy of the Canadian Ice Service, in Ottawa. Photograph 34 illustrates typical heavy brash in the area of the study, with land-fast or *batture* ice in the background. Photographs 35 to 39 are included to illustrate some ice conditions encountered in the lower Estuary and in the Gulf. These areas were not included in the present study.

The kind collaboration and photographic contributions from the personnel of the Canadian Ice Service is gratefully acknowledged.



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**Photo 1**

**Ultramar terminal, aerial view, March 6, 2003: note fast ice, stabilized by the protective dolphins located upstream, shearing zone ("chariot") at ice edge.**



**Photo 1a**

**Ultramar terminal, from the north shore, at the top of Pointe-de-l'Église, January 16, 2003; total concentration 7, brash, nilas and young ice.**



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**Ultramar terminal, from the south shore, February 19, 2003: note open design of wharf, ice collars formed around the concrete piers, large rubber fenders.**



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**Ferry terminal at Lévis, March 6, 2003: medium floes, during ebb tide.**





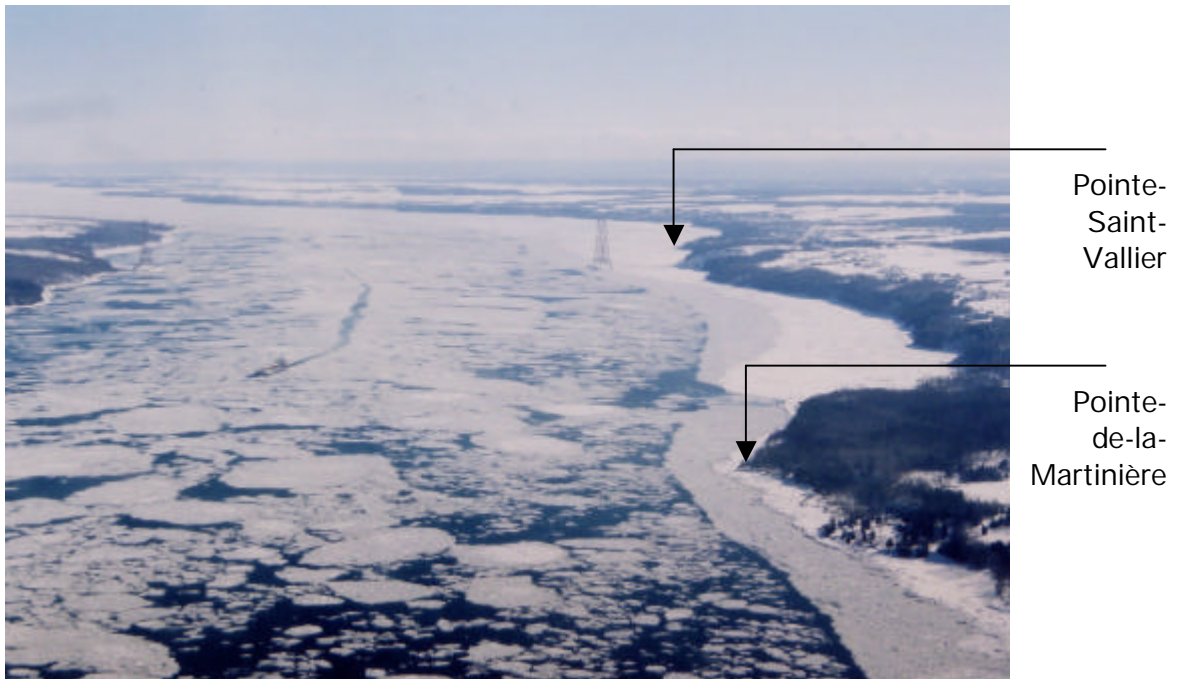
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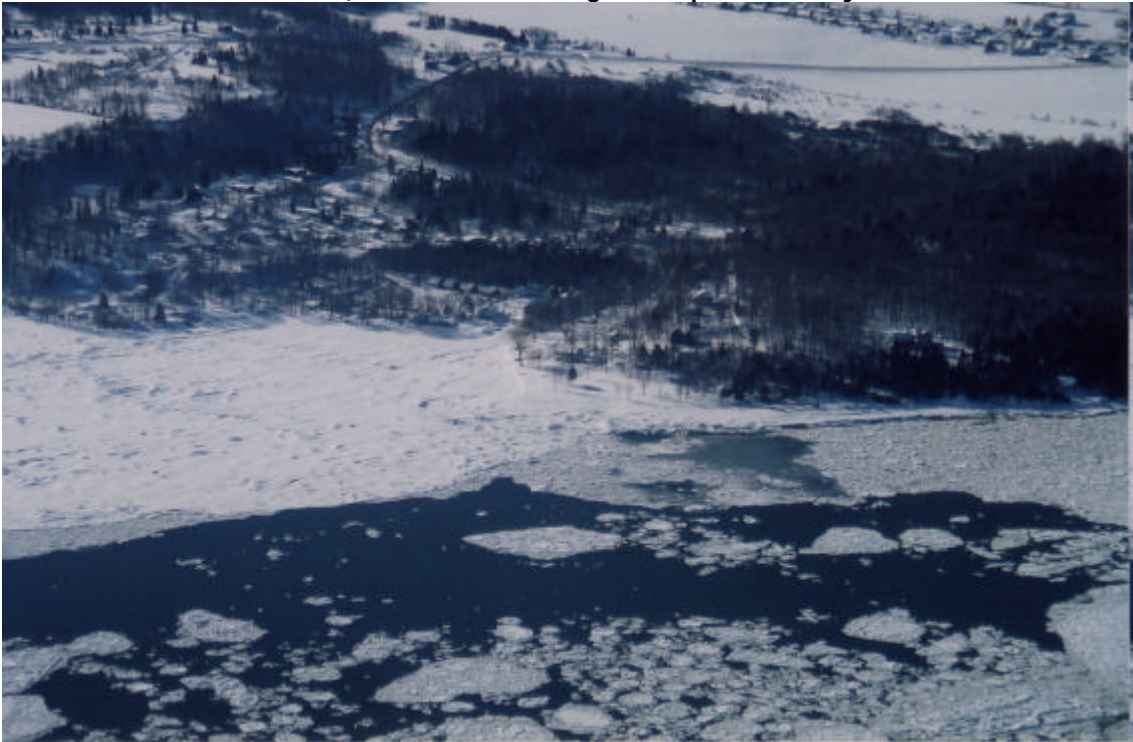
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Pointe-de-la-Martinière, looking south, March 6, 2003.



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**Looking north from the top of the hill at Pointe-de-la-Martinière, towards Île d'Orléans, February 19, 2003: extent of fast ice probably at its maximum into the river; some open water at the edge of the fast ice (foreground) and close to the other shore, near the island.**



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Aerial view of Pointe-Saint-Vallier, March 6, 2003.



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Looking northeast along the shore, towards Baie de Kamouraska, January 15, 2003.



**Photo 14b**  
From the shore near Kamouraska, looking west towards Pointe-aux-originaux, January 15, 2003..



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**Aerial view of Pointe-aux-orignaux, near Kamouraska, March 6, 2003.**



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